

**TEXT ANALYSIS.** See **CONTENT ANALYSIS, GROUNDED THEORY**

**THEORY.** See **EVALUATION THEORY, PROGRAM LOGIC, PROGRAM THEORY, THEORY-DRIVEN EVALUATION**

## ■ THEORY-DRIVEN EVALUATION

*Theory-driven evaluation* (or program theory-driven evaluation) is a contextual or holistic assessment of a program based on the conceptual framework of program theory. The purpose of theory-driven evaluation is to provide information on not only the performance or merit of a program but on how and why the program achieves such a result. Program theory is a set of implicit or explicit assumptions of how the program should be organized and why the program is expected to work. The nature of program theory and its conceptual framework are discussed on pages 340 to 342 in the encyclopedia. When looking into the crucial assumptions underlying a program, evaluators should consider that theory-driven evaluation provides insightful information that assists stakeholders in understanding those components of their program that work well and those that do not. Theory-driven evaluation is particularly useful when stakeholders want an evaluation to serve both accountability and program improvement needs.

### GENERAL TYPES OF THEORY-DRIVEN EVALUATIONS

The conceptual framework of program theory is presented elsewhere (see the Program Theory entry). Different models of theory-driven evaluations can be constructed depending on which part of the conceptual framework of program theory the evaluation is focused (Chen, 2004). The types of theory-driven evaluations that have been commonly applied are theory-driven process evaluation, intervening mechanism evaluation, moderating mechanism evaluation, and integrative process/outcome evaluation.

#### *Theory-Driven Process Evaluation*

Theory-driven process evaluation focuses on assessing the portion of action model implementation in the conceptual framework (see the Program Theory entry). More specifically, theory-driven process evaluation is a holistic assessment of the congruency between the major components of program theory, especially the portion of the action model, and their actual implementation.

An example illustrating theory-driven process evaluation is an evaluation of a large anti-drug abuse program for middle school students in Taiwan (Chen, 1997). The program asked school teachers to identify drug-abusing students and provide them with counseling services. The congruency between the action model of the program and actual implementation is illustrated in Table 1.

#### *Intervening Mechanism Evaluation*

The model of intervening mechanism evaluation focuses on the change model of the conceptual framework of program theory. The change model consists of three components: intervention, determinants, and outcomes. The model of intervening mechanism evaluation is illustrated in Figure 1.

Using the evaluation of a school-based anti-smoking program (Chen, Quane, Garland, & Marcin, 1988) as an example, program designers devised a comic book with an anti-smoking story as an intervention for changing students' attitudes and behaviors regarding smoking. The *determinants* were the students' interest in reading and keeping the comic book. The evaluation assessed not only whether keeping the comic book affected the number of times the comic book was read but also whether the number of times the book was read affected students' smoking related attitudes and behavior.

Figure 1 is a basic model of intervening mechanism evaluation. The model can be expanded to include multiple determinants in sequential order. To date, the intervening mechanism evaluation is the most popular type of theory-driven evaluation in terms of application.

#### *Moderating Mechanism Evaluation*

The moderating mechanism evaluation involves assessing one or more factors in program implementation that conditions, or moderates, the intervention's effect on outcome. The factors assessed are called *moderators*. The basic model for the moderating mechanism evaluation is illustrated in Figure 2.

**Table 1** Evaluating an Anti-Drug Abuse Program

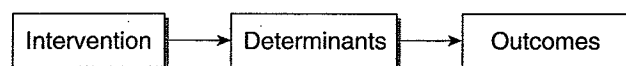
<i>Program Components</i>	<i>Program Plan</i>	<i>Actual Implementation</i>
Target population	All drug-abusing student Drug use to be verified through urinalysis	Only those drug-abusing students who were easy to reach Urinalysis collection environment was not controlled
Implementers	Teachers provided with adequate drug abuse treatment training and information	Teachers lacked adequate drug abuse treatment training
Intervention protocol	Primary: High-quality counseling	Counseling mainly involved use of admonishment, threats, and encouragement
	Secondary: Drug education classes	Drug education classes were offered
Service delivery protocol	Compulsory individual counseling	Compulsory individual counseling, but with problems such as lack of plan and objective
Implementing organizations	Every school	Smaller schools had difficulty implementing the program
Linking with associate organizations	Effective centralized school system	Communication gap, mistrust between Ministry of Education and the schools
Ecological context		
	Micro	Eliminating video game arcades
	Macro	Strong public support
		Strong public support, but problematic education system (elitism)

SOURCE: Adapted from *Evaluation and Program Planning*, 20(2), Chen, Huey-Tsyh, "Normative evaluation of an anti-drug abuse program," 195-204, Copyright 1997, with permission from Elsevier.

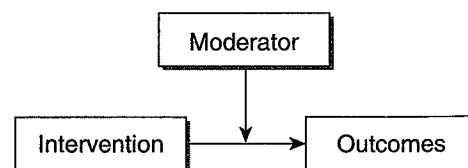
In Figure 2, the *moderating mechanism* is represented by the arrow drawn from the moderator to the midpoint of another arrow that is located between intervention and outcome, delineating the way in which the moderator conditions the intervention-outcome relationship. For example, the effectiveness of the family counseling may depend on the trust maintained between counselor and clients. Generally speaking, moderators can be clients' sociodemographic characteristics (e.g., race, gender, education, age), implementers' characteristics and styles (e.g.,

enthusiasm, commitment, skills, race, gender), features of client-implementer relationships (e.g., trust, compatibility of client and implementer gender and race or ethnicity), and mode and setting of service delivery (e.g., formal versus informal, rural versus urban, the intervention's integrity, and the organizational climate, whether centralized or decentralized).

Figure 2 is the basic model of the moderating mechanism. The model can be expanded by incorporating intervening mechanisms into it.



**Figure 1** *Basic Model of Intervening Mechanism Evaluation*



**Figure 2** *Basic Model of Moderating Mechanism Evaluation*

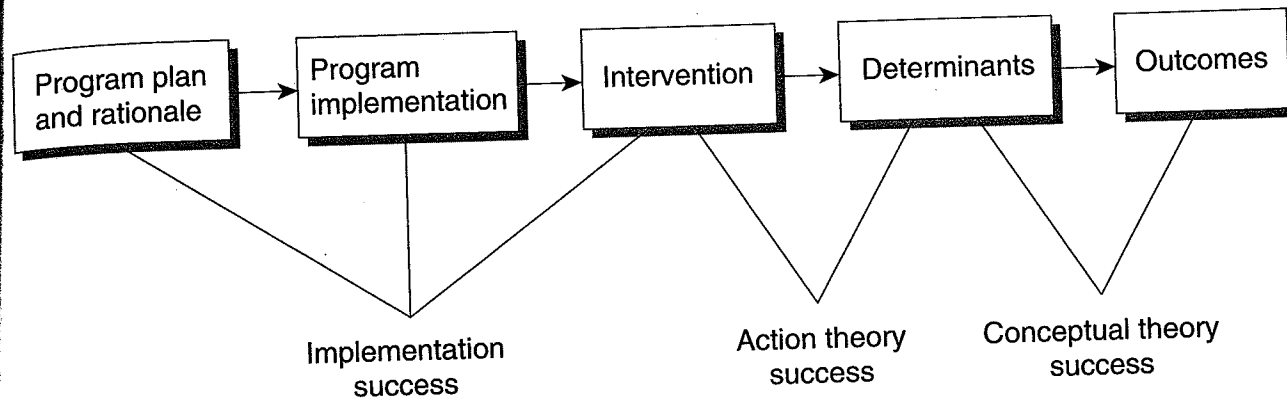


Figure 3 Model of Integrative Process/Outcome Evaluation

### Integrative Process/Outcome Evaluation

Integrative process/outcome evaluation pertains to the systematic assessment of the crucial assumptions underlying implementation and of the causal processes of a program. This consummately comprehensive assessment provides a network of information about what works and what does not work in a program, from implementation processes to causal processes to effects on outcomes. Such a thorough analysis of potential pathways enlightens stakeholders as to how their program truly operates, providing the knowledge they will need to meet the accountability and program-improvement requirements they face.

For example, the application of the integrative process/outcome evaluation to the garbage reduction program (Chen, Wang, & Lin, 1997) requires a systematic evaluation of the change model and action model. The evaluation of the change model required assessment of whether the casual process underlying the program was operated as it was supposed to be. The program assumed that the new garbage collection policy would increase residents' experience of the inconvenience of storing garbage and its unpleasant smell, which in turn would lead to a drop in the amount of garbage produced by the residents. The evaluation of the action model required assessment of the following components:

- *The target population.* Were the residents well informed of the program prior to implementation?
- *Protocols of intervention and service delivery.* Had they developed? If so, they would ensure that garbage was not brought to collection points on Tuesdays.
- *Implementing organization and implementers.* Did the sanitation department have enough personnel and budget for the program? Had it provided workers with training and rehearsed them for implementation of the policy?

- *Public support and linkage with associate organizations.* Did public support for the program and links with peer organizations exist? If not, were these being created?

Integrative process/outcome evaluation, as illustrated in Figure 3, provides information on the important ingredients necessary for a program to be successful. Implementation success refers to the successful implementation of a program plan in the field so that the intervention is appropriately implemented in the field. Action theory success refers to the intervention successfully activating the desired change in the determinants. Conceptual theory success refers to the program's having successfully focused determinants so that the outcomes have been changed. Figure 3 illustrates how challenging it is to design and implement a successful intervention program. For a program to be effective, the implementation, action theory, and conceptual theory must succeed. Implementation success is vitally important to the entire change process. If implementation fails, everything fails. Even when implementation succeeds, however, the success of a program is not guaranteed. Invalidity of either the action theory or conceptual program theory could spell its doom. Comprehensive, systematic integrative process/outcome evaluation abundantly fleshes out assumed underlying mechanisms. It thus provides to stakeholders insightful information they need to have to improve their programs.

### ISSUES IN AND STRATEGIES FOR DESIGNING THEORY-DRIVEN EVALUATIONS

#### Scope of Program Theory in a Theory-Driven Evaluation

Program theory belongs to stakeholders. However, the assumptions underlying their program theory

often are not explicitly and systematically stated. One of the essential requirements in theory-driven evaluation is to clarify stakeholders' program theory or facilitate their development of one. The scope of program theory to be clarified or developed depends on which type of theory-driven evaluation stakeholders are interested in. For example, the intervening mechanism or moderating mechanism evaluation is mainly concerned with the portion of the change model in program theory. In this kind of evaluation, evaluators need to focus only on clarifying stakeholders' theory in this portion, the change model. However, if stakeholders and evaluators want to conduct the integrative process/outcome evaluation, the evaluators need to clarify the stakeholders' entire program theory.

### *Role of Evaluators in Clarifying Stakeholders' Theory*

In clarifying stakeholders' program theory, the evaluator's role is that of facilitator. Evaluation skills and knowledge should be brought to bear to increase the productivity of the meetings at which various stakeholders attempt to articulate and refine their ideas about program theory. Stakeholders are sure to have divergent backgrounds, concerns, and interests. It is easy for them to spend much time with freeform discussions that never even approach agreement. The evaluator's job as *facilitator* is to outline for the group the salient issues to discuss, showing stakeholders where to fill in with their own experiences, thoughts, and expertise. The evaluator can synthesize the discussions and build consensus. The evaluator could fill in with his or her own evaluation expertise when stakeholders ask for advice. The evaluator is present to lay out options for stakeholders to consider. However, imposition of the evaluator's own values on stakeholders should studiously be avoided. Evaluators should make clear that stakeholders' program theory will be used as a basis for designing and conducting a theory-driven evaluation.

### *Participatory Modes*

Evaluators can clarify an existing program theory or assist stakeholders whose program theory is under development by adopting either of two general participatory modes: the *intensive interview* and the *working group*. Choosing a mode is a prerequisite for stakeholders and evaluators preparing to work together.

The *intensive interview mode* centers on individual, intensive interviews the evaluator holds with representatives from each key stakeholder group. The aim is to record systematically the individuals' perceptions about issues within the incipient program theory. Based on these interviews, the evaluator formulates a first draft of the program theory, to be read by the representatives and other stakeholders. Their comments are considered as the final draft is prepared. Evaluators can, in addition, conduct a meeting of these individuals for the purpose of fine-tuning and finalizing the program theory. The *working group mode* similarly involves representatives from key stakeholder groups. However, in this mode the representatives are not interviewed individually but instead meet together with the evaluator to develop the program theory. Group members need to include representatives (a) of those who will be most deeply involved in formulating and designing the program, (b) of those who will be most deeply involved in implementing the program, and (c) of other key constituencies whose input will be influential in determining the direction the program will take. The facilitator, of course, (d) is an additional member. This list actually results in relatively few participating persons when the program is a small one. For a large program, however, there is a temptation to include many persons in the working group. A group that is too large can discourage members' full participation, at the same time necessitating many more sessions to finish the work.

### *Theorizing Procedures*

As with the participatory mode, a *theorizing procedure* must be selected to help stakeholders develop their program theory. So-called *forward reasoning*, *backward reasoning*, and *backward/forward reasoning* are the two general options for evaluators working within the development strategies. Backward reasoning is an approach that begins with the change model, then moves backward step by step to the action model to obtain the program theory. It is "backward" reasoning in that the process moves in the reverse direction of sequences shown in the conceptual framework of program theory (as indicated in the program theory entry). More specifically, backward reasoning starts with the question, What goals will the program want to achieve? What determinants, related to goals, will be focused on by the program? What intervention will be used to affect the determinants? After the change

model is completed, evaluators can facilitate stakeholders to develop an action model by asking the following questions: Which target populations need to be reached and served? What kinds of program implementers and implementing organizations are needed? What kinds of intervention and implementation protocols are required? Does the program need to collaborate with other organizations? Does the program need to seek ecological support?

Forward reasoning is the formulation of a program theory that accords with the logic flow specified in the conceptual framework of program theory—action model first, then change model. More specifically, forward reasoning concerns general program goals and grows out of the initial question about the kind of action model needed. These questions follow: What kinds of intervention and service delivery protocols are the implementing organizations good at that can solve a particular problem or assist in attaining certain goals? What target population needs reaching, how can it be reached for services, in what setting, and using what delivery mode? Are there barriers facing clients that the program could help them surmount? Should program designers seek contextual support of the intervention? How? Once the action model is complete, evaluators and stakeholders can develop a change model by asking two questions in sequence: What determinants will be affected by the intervention? What outcomes will be achieved by changing these determinants?

It is important to note that forward and backward reasoning are not mutually exclusive. The forward/backward reasoning is a use of both approaches, back and forth, to facilitate stakeholders making explicit their program theory. Evaluators and stakeholders who want the best of both worlds can apply backward reasoning first and then use forward reasoning to compensate for weaknesses attending the former procedure. For example, an evaluation focused on *both* action and change models might begin with the forward reasoning procedure to construct an action model; take up backward reasoning to establish a change model; and, finally, integrate the two to arrive at an overall program theory. This dual procedure is the better choice when program stakeholders and evaluators believe that unintended outcomes will be an important issue. Going through the theorizing procedures from different directions will alert members of a working group to the possibility of potential unintended effects. The evaluator can facilitate discussion of such unintended effects and ways to prevent them, if they are undesirable.

### *Consensus Among Stakeholders on Their Program Theory*

Agreement among stakeholders about what the program theory should look like often is not difficult to reach. However, even if some components of the program plan do spark disagreement between key stakeholders, this is not an obstacle to evaluation. Rather, disagreement means that evaluators should test various hypotheses during the investigation of the implementation. Suppose key stakeholders in a program argue about who should be charged with implementing the program—professionals or trained peer volunteers? If implementers currently delivering services come from *both* these groups, the evaluation can ask about the relative quality of service delivery by each. Resulting data would be useful for settling differences among stakeholders as they continue planning future programs.

### *Research Methods*

Theory-driven evaluations need to use mixed (qualitative and quantitative) methods in clarifying stakeholders' program theory. However, in terms of research design, data collection, and data analysis, some patterns are emerging from past applications of theory-driven evaluations. Quantitative methods have been heavily used in intervening mechanism evaluation and moderating mechanism evaluation. Theory-driven process evaluation and integrative process/outcome evaluation have required the collection and analysis of both qualitative and quantitative data.

—Huey-Tsyh Chen

### **Further Reading**

- Chen, H.-T. (1990). *Theory-driven evaluations*. Newbury Park, CA: Sage.
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